

WHAT IS CLAIMED IS:

1. A fuel cell, comprising:
 - a fuel electrode which has a fuel-diffusion layer for diffusing fuel;
 - an oxygen electrode which has an oxygen-diffusion layer for diffusing oxygen; and
 - an electrolyte layer which is arranged between the fuel electrode and the oxygen electrode,wherein the fuel-diffusion layer has higher water-repellency than that of the oxygen-diffusion layer.
2. A fuel cell, comprising:
 - a fuel electrode which has a fuel-diffusion layer for diffusing fuel and a fuel-reactive layer for having the fuel react, the fuel-reactive layer being in contact with the fuel-diffusion layer;
 - an oxygen electrode which has an oxygen-diffusion layer for diffusing oxygen and an oxygen-reactive layer for having the oxygen react, the oxygen-reactive layer being in contact with the oxygen-diffusion layer; and
 - an electrolyte layer which is arranged between the fuel electrode and the oxygen electrode,wherein the fuel-diffusion layer has higher water-repellency than that of the oxygen-diffusion layer.
3. The fuel cell as claimed in Claim 1, wherein each of the fuel-diffusion layer and the oxygen-diffusion layer has at least one water-repellent-material-containing layer which contains a material having water repellency, and the water-repellent-material-containing layer of the fuel-diffusion layer has higher water-repellency than that of the oxygen-diffusion layer.
4. The fuel cell as claimed in Claim 3, wherein the content

of the material having water repellency in the water-repellent-material-containing layer of the fuel-diffusion layer is larger than that of the material having water repellency in the water-repellent-material-containing layer of the oxygen-diffusion layer.

5. The fuel cell as claimed in Claim 4, wherein the content of the material having water repellency in the water-repellent-material-containing layer of the fuel-diffusion layer is larger than that of the material having water repellency in the water-repellent-material-containing layer of the oxygen-diffusion layer by at least 5wt%.

6. The fuel cell as claimed in Claim 3, wherein the content of the material having water repellency in the water-repellent-material-containing layer of the fuel-diffusion layer is 20 to 80wt%.

7. The fuel cell as claimed in Claim 3, wherein the content of the material having water repellency in the water-repellent-material-containing layer of the oxygen-diffusion layer is 15 to 65wt%.

8. The fuel cell as claimed in Claim 3, wherein the water-repellent-material-containing layer of the fuel-diffusion layer and the water-repellent-material-containing layer of the oxygen-diffusion layer include a conductive material, respectively, in which the conductive material in the water-repellent-material-containing layer of the fuel-diffusion layer has higher water-repellency than that of the conductive material in the water-repellent-material-containing layer of the oxygen-diffusion layer.

9. The fuel cell as claimed in Claim 3, wherein the water-repellent-material-containing layer is a layer in which the water repellency material is carried by a particulate conductive material.

10. The fuel cell as claimed in Claim 3, wherein the fuel-diffusion layer has the water-repellent-material-containing layers at its both sides.

11. The fuel cell as claimed in Claim 3, wherein the oxygen-diffusion layer has the water-repellent-material-containing layers at its both sides.

12. The fuel cell as claimed in Claim 1, wherein the water contact angle on the surface of the fuel-diffusion layer is larger than the water contact angle on the surface of the oxygen-diffusion layer by at least 5°.

13. The fuel cell as claimed in Claim 1, wherein the water contact angle on the surface of the fuel-diffusion layer is 100 to 160°.

14. The fuel cell as claimed in Claim 1, wherein the water contact angle on the surface of the oxygen-diffusion layer is 90 to 150°.

15. The fuel cell as claimed in Claim 1, wherein the fuel cell uses hydrogen as fuel.

16. A fuel cell device, comprising a fuel cell as claimed in any one of Claims 1 - 15.

17. A fuel cell device, comprising:
a fuel cell main body which includes
(a) a fuel electrode which has a fuel-diffusion layer

[illegible]

- and**

18. The fuel cell device as claimed in Claim 17, further comprising water supply means for supplying water to the oxygen electrode.